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MEDICAL DEVICES AND APPLICATIONS OF POLYHYDROXYALKANOATE POLYMERS

Cross-Reference To Related Applications

5 This application is a divisional of pending prior application U.S. Serial No. 09/535,146 filed March 24, 2000, which claims priority to U.S. Serial No. 60/142,238, filed July 2, 1999, and U.S. Serial No. 60/126,180, filed March 25, 1999.

Field of the Invention

10 The present invention generally relates to polyhydroxyalkanoate (“PHA”) biopolymers and medical uses and application of these materials.

Background of the Invention

 In the medical area, a number of degradable polymers have been developed that break down *in vivo* into their respective monomers within weeks
15 or a few months. Despite the availability of these synthetic degradable polymers, there is still a need to develop degradable polymers which can further extend the range of available properties, particularly mechanical properties.

 Polyhydroxyalkanoates are natural, thermoplastic polyesters and can be processed by traditional polymer techniques for use in an enormous variety of
20 applications, including consumer packaging, disposable diaper linings and garbage bags, food and medical products. Initial efforts focused on molding applications, in particular for consumer packaging items such as bottles, cosmetic containers, pens, and golf tees. U.S. Patent Nos. 4,826,493 and 4,880,592 describe the manufacture of poly-(R)-3-hydroxybutyrate (“PHB”) and
25 poly-(R)-3-hydroxybutyrate-co-(R)-3-hydroxyvalerate (“PHBV”) films and their use as diaper backsheet. U.S. Patent No. 5,292,860 describes the manufacture of the PHA copolymer poly(3-hydroxybutyrate-co-3-hydroxyhexanoate) and the use of these polymers for making diaper backsheet film and other disposable
30 items. Diaper back sheet materials and other materials for manufacturing biodegradable or compostable personal hygiene articles from PHB copolymers other than PHBV are described in PCT WO 95/20614, WO 95/20621, WO